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4

Common errors and remedies in managing postpartum haemorrhage

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Postpartum haemorrhage (PPH) is a major contributor to maternal morbidity and mortality. By only examining mortality, the full extent of the problem is not revealed and also it is important to evaluate the avoidable factors. This will identify the areas that need attention. The common errors include not treating anaemia in pregnancy, not practicing active management of the third stage of labour, delay in recognition, substandard care and lack of skills. The remedies include the correct medical treatment of PPH and the use of uterine tamponade. Cell savers can help to reduce the need for transfusion and transfusion associated complications. There are new treatment modalities such as embolisation that can be of value in certain settings.

Postpartum haemorrhage (PPH) is a major cause of maternal deaths around the world.[1–3] The incidence of PPH is between 2 to 11%.[4,5] According to the World Health Organisation (WHO), 10.5% of live births are complicated by PPH and in 2000 13,795,000 women suffered from PPH with 13,200 deaths.[6] The second major cause of maternal deaths was sepsis causing 79,000 deaths.[6] In the United Kingdom (UK), Waterstone and co-workers found the rate of PPH to be 6.7/1000 deliveries.[7,8] Low and co-workers found that 15% of deliveries in northern rural Honduras were complicated by PPH.[9] There is considerable variation in the PPH specific maternal mortality ratios between developed countries and

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developing countries. The rate for sub-Saharan Africa is 40 per 100,000 deliveries compared with the 1 per 100,000 deliveries in the UK and 8.9 per 100,000 in the United States of America.[10,11] The last triennium report on maternal deaths from the Confidential Enquiries into Maternal and Child Health (CEMACH) in the UK reported 17 deaths due to postpartum haemorrhage.[12,13]

Looking only at deaths due to PPH can be misleading as it is the tip of a much larger iceberg. Some countries like Scotland have a national near miss audit and others like South Africa and Nigeria have institutional data.[12,14–16] There is also near miss data from the capitol cities of the Brazilian states.[17] Mantel and co-workers found that 55.8% of near misses in South Africa were due to PPH. In Canada, Baskett and co-workers found the rate to be 22%, Waterstone in the UK found it to be 55.7%, Brace in Scotland 50% and Pural in West Africa 49.5%.[14,18] An alarming fact is that in both the Scottish data and the data from Nigeria there is a rise in morbidity due to PPH.

Despite PPH being a major cause of maternal near miss, it is not a common cause of maternal death in developed countries. There were 17 maternal deaths reported in the 2003–2005 CEMACH due to all forms of obstetric haemorrhage including uterine and vaginal trauma.[19] In a case-controlled study on peripartum hysterectomy carried out by the UK Obstetric Surveillance System (UKOSS), 315 women were reported to have had a hysterectomy to control bleeding. Approximately 60 women undergo hysterectomy for haemorrhage for every woman that dies from the condition.[20] It was estimated that 28% of the hysterectomies were associated with previous caesarean sections, often with a morbidly adherent placenta. Women who had had a previous caesarean section were three and a half times more likely to have a peripartum hysterectomy due to haemorrhage than women without a previous caesarean section. The main areas of substandard care in women who died were a failure to recognise concealed haemorrhage, mismanaging atonic uteri (substandard use of oxytocin and ergometrine) and poor identification and management of placenta percreta.[19]

In the Tshwane Region of Gauteng in South Africa, a maternal near miss audit has been ongoing since 1997. After the initial study[21] the protocols for the major causes of maternal near miss were revised. The new protocols generally reduced the maternal near miss rate.[22,23] However, the mortality index for PPH was unchanged from 5.2% in 1997–8 to 6.2% in 2002–6 (OR 1.18 95% CI 0.25, 5.5). During 2002–6 there were 12 maternal deaths and 182 maternal near misses (Lombaard: Priorities in Perinatal Care Congress, Hartenbos 2007). The incidence of PPH was between 8–9% (Mabenge, Lombaard: Priorities in Perinatal Care Congress, Hartenbos 2007) giving a case fatality rate of 0.18% for PPH. The lack of reduction in the mortality index was disappointing despite the introduction of the new protocols leading to a review of the protocol and identification of common errors. The common errors are given below and the protocol was adjusted to place more emphasis on achieving more immediate control of blood loss by using a balloon tamponade.

Common errors

Women who die from postpartum haemorrhage have more incidents of substandard care than near misses. The pattern of the errors is the same but the proportions of errors per case occurring less frequently in the maternal near miss group. This is illustrated in a comparison of maternal deaths and maternal near misses in the Pretoria Academic Complex between 2002 and 2006 where there were 2.25 errors per death as opposed to 0.61 errors per maternal near miss. (see Table 1).

The common errors relating to the health system are:

- Not directly preventing PPH
  - not using the active management of the third stage of labour
- Not reducing risk factors such as
  - correcting anaemia antenatally
  - preventing prolonged labour
  - actively managing twin deliveries
- Not having sufficient skills available
  - recognising the severity of the bleeding
  - giving sufficient fluids in resuscitation